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HANDBOOK

Illustrated



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AMBULANCE HANDBOOK

COMPLETE INSTRUCTION
FULLY ILLUSTRATED

BY

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Ambulance Section, London Scottish Regiment

*Author of "How to Run a Troop," "How to Signal,"
"Sea Scouts' Log Book"*

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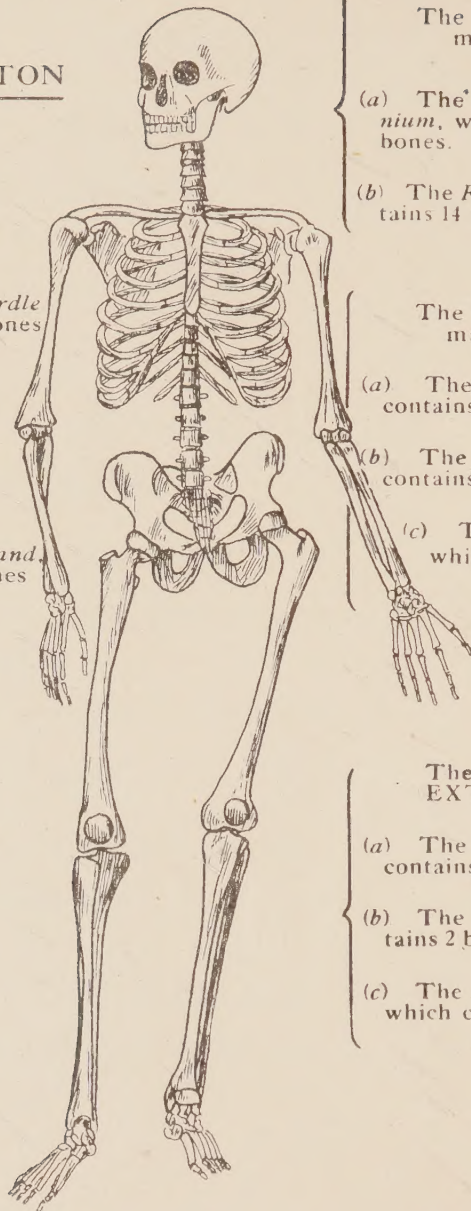
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THE SKELETON

The UPPER EXTREMITY

- (a) The *Shoulder girdle*, which contains 2 bones
- (b) The *Arm*, which contains 1 bone.
- (c) The *Forearm*, which contains 2 bones.
- (d) The *Wrist and Hand*, which contain 27 bones



The HEAD is
made up of

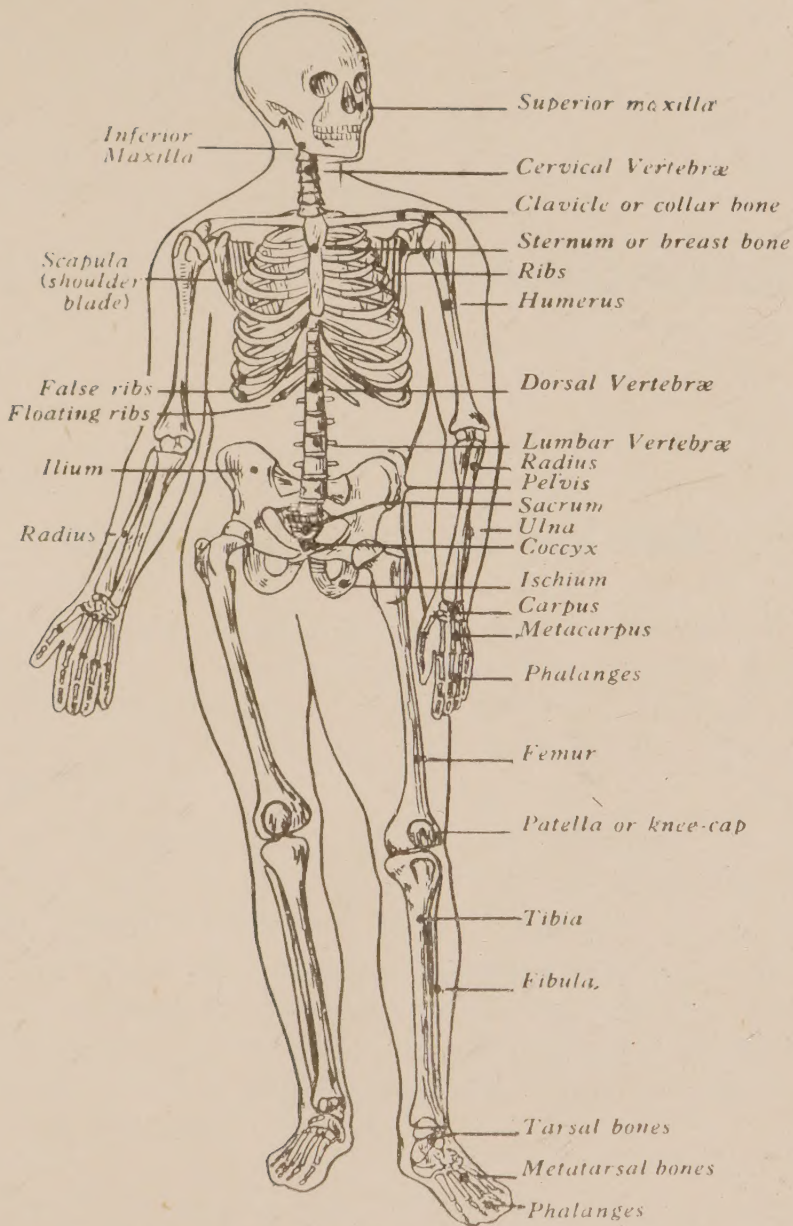
- (a) The *Skull* or *Cranium*, which contains 8 bones.
- (b) The *Face*, which contains 14 bones.

The TRUNK is
made up of

- (a) The *Spine*, which contains 24 bones.
- (b) The *Thorax*, which contains 25 bones.
- (c) The *Pelvis*, which contains 4 bones.

The LOWER EXTREMITY

- (a) The *Thigh*, which contains 1 bone.
- (b) The *Leg*, which contains 2 bones.
- (c) The *Ankle and Foot*, which contain 26 bones.



THE AMBULANCE HANDBOOK

CHAPTER I

OBJECTS OF FIRST AID TRAINING

It is not the purpose of the Scout movement to develop a lot of amateur doctors, but to give Scouts sufficient information on the subject of First Aid as will enable them to act quickly in cases of emergency.

They should be able at any opportunity to give sufficient help to prevent the patient receiving any further harm in cases of fractures, fits, etc.

In the case of a serious accident, the first thing to do is to send for the nearest doctor. If the nature of the injury is known, the messenger should be informed, so that the doctor may come prepared to deal with the case.

In many instances the most that can be done, until the doctor arrives, is to relieve the patient by placing something under his head, unbuttoning his clothes, and keeping back the crowd so that he has sufficient air.

In the case of a fracture, if it is necessary to remove the patient, care should be taken to adjust the splints so that no further damage may be done.

CHAPTER II

THE SKELETON

THE skeleton consists of a bony framework which gives shape and firmness to the body, forms levers on which the muscles act, and protects important organs as in the skull and chest.

Composition of Bone.

Bone is composed of one-third of animal matter and of two-thirds mineral matter, which consists chiefly of phosphate of lime, magnesia, and carbonate of lime.

The hard, dense, white ivory-like part of bone (on the outside) is called Compact Tissue ; the inner portion of the bone is called Cancellous or Spongy Tissue.

Bones are nourished by a twofold blood supply, one supply passing into the interior of the bone, the other feeding the tough outside sheath which covers the bone.

The Joints.

There are two kinds of joints—viz., Movable and Immovable.

A joint is where two or more bones join. Some joints are movable, such as the elbow, which is a hinge joint ; the wrist, which is a gliding joint ; the shoulder and hip joints, which are ball-and-socket joints ; and the joint between the upper ends of the *radius* and *ulna* (in the arm), which only allows of rotation, is called a pivot joint.

In the movable joints cartilage covers the ends of the bones forming the joint, and the surfaces of the joint are very smooth. There is also a lubricant (or “ joint oil ”), a clear, sticky fluid called *synovia*.

There are also immovable joints, as in the skull, and partly movable joints, as in the backbone.

The bones forming a joint are held together by means of ligaments or firm fibrous bands, which prevent them from slipping out of place.

CHAPTER III

THE MUSCLES

THE muscles are the fleshy parts of the body. The muscles enable us to make movement. They are composed of a large number of fibres, which are made to contract under the influence of nerves.

The muscles are arranged in groups or bands round the bones, each group being capable of performing some definite series of movements. Take for example the thigh muscle (or *Rectus*), which is shown in the illustration on page 6. You will notice that towards each end of the muscle the bands of flesh unite to form a thick fibrous tendon which is attached to the bone. When the muscle contracts it shortens and thickens up, thus bringing the ends nearer each other, and your leg is straightened.

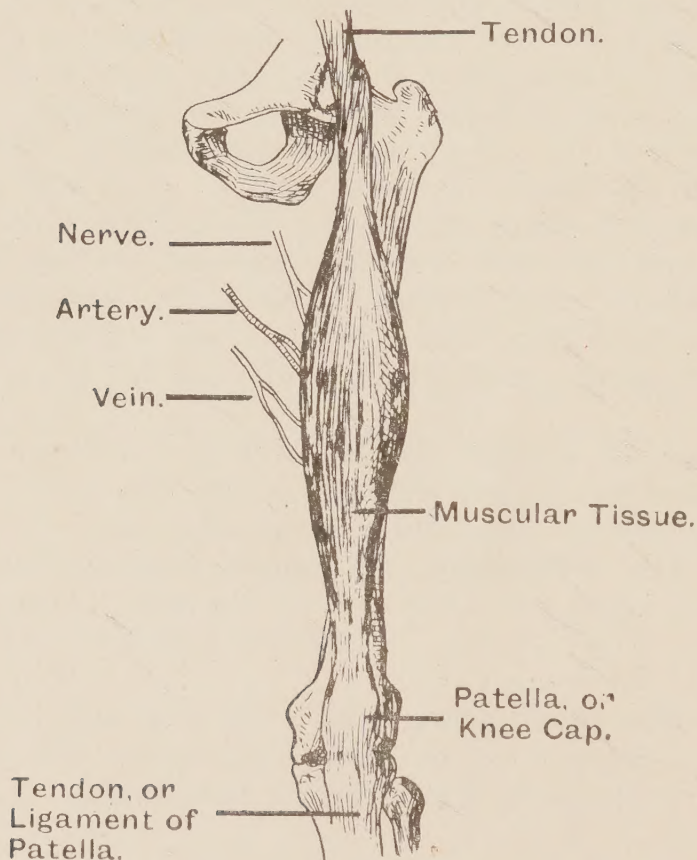
A mass of muscles at the back of the thigh when contracted bend your leg back at the knee.

There are two kinds of muscles :—

1. The **Voluntary**, so called because most of them are controlled by the will. Examples : The Limbs, Walls of Chest, Neck and Abdomen.
2. The **Involuntary**, which are not under the influence of the will. Examples : The Heart, Stomach, Bladder and Intestines.

If seen under a microscope, the voluntary muscles will appear cross-striped, each fibre of which is made up of a number of finer fibrils. Each fibril consists of a number of cells, like a string of beads.

The fibres of the involuntary muscles are unstriped or plain, and consist of single elongated cells.



CHAPTER IV

ORGANS OF THE ABDOMEN AND PELVIS

THE **Stomach** lies immediately below the "pit of the stomach," which lies below the breast-bone. Injuries to the stomach are attended by extreme collapse and sometimes by vomiting of dark blood.

The **Liver** lies in the upper part of the abdomen, where it is mostly covered by the right lower ribs.

The **Spleen** lies in the upper left side of the abdomen; and

The **Intestines** occupy the greater part of the cavity of the abdomen.

Injuries of the Liver, Spleen, and Intestines may be caused by a stab, a blow, or a bullet. The Liver or Spleen may be injured by a fracture of the lower ribs. The signs and symptoms are those of internal hæmorrhage, accompanied by pain and swelling at the seat of injury.

The **Kidneys** lie at the back in the region of the loin. They may be injured by a crush, stab, blow, bullet, or by injury to the 11th or 12th ribs. There is pain and swelling over the injured kidney, and blood may escape with the urine.

The **Bladder** lies in the pelvis. It may be injured by a fracture of the pelvis. The signs and symptoms are either inability to pass water, or if any is passed it is tinged with blood.

CHAPTER V

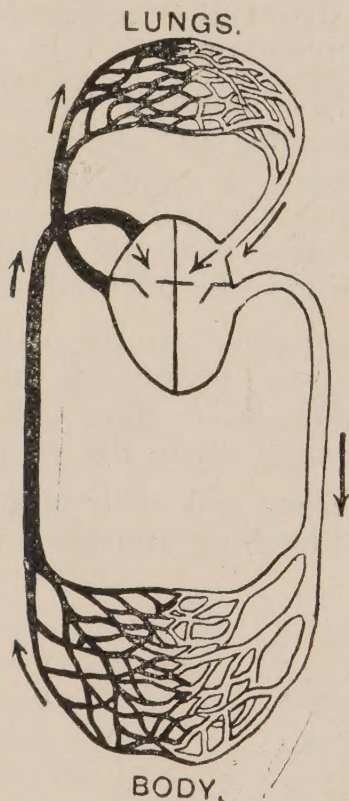
THE CIRCULATORY SYSTEM

THE organs concerned in the circulatory system are the Heart, Arteries, Veins, and Capillaries. They distribute blood, the nourishing fluid, to every part of the body. Blood consists of a light transparent liquid called Plasma, in which float minute particles or Blood Corpuscles, which are microscopic in size, and float about in millions in the clear yellowish liquid or plasma. There are red corpuscles, from which blood gets its colour. They act as oxygen carriers. There are also white or colourless corpuscles, which assist in the healing of wounds. They are larger than the red, and the proportion in which they are present is 1 to 500 red.

The **Heart** is a hollow muscular organ, which acts as a pump. It is situated in the chest behind the breast-bone and between the lungs, with its apex pointing down to the left. Its size is equal to your clenched fist.

The heart is divided into two distinct halves, with no direct communication. Each half is divided into an upper (Auricle) and a lower (Ventricle) compartment, which are connected with each other and provided with flaps or valves.

When the heart beats or contracts blood is driven out, and it passes through the body and into the heart again, where it gets a further drive to give it



sufficient force to go through the lungs. In the lungs it comes in contact with the oxygen of the air, which purifies it. From the lungs it passes

into the left auricle of the heart and down into the left ventricle, to be again pumped through the body.

The **Arteries** are tubes with thick walls, which carry the blood from the heart. They divide and sub-divide into microscopic vessels, called

Capillaries. These connect the arteries with the veins. Being so small and their walls so thin, they are able to absorb oxygen from the lungs and nourishment from the digestive organs. At the same time impurities soak through into them and pass on to the veins to be purified in the lungs.

The **Veins** commence in the capillaries, increase in size and become fewer as they approach the heart. The veins have flaps which prevent the blood from flowing back in the wrong direction.

The main arteries and their names are given in the chapter on "Bleeding, and How to Stop It."

CHAPTER VI

THE RESPIRATORY SYSTEM

It is essential that we should have a supply of oxygen to keep life in us. Oxygen is contained in the air around us, and the respiratory system is concerned in supplying the body with this vital substance.

Air enters the body by the nose or mouth—I purposely put nose first as it is the correct passage to breathe through—which opens into the back of the throat, whence it enters the wind-pipe by an opening guarded by a valve or trap-door (called the Epiglottis). This valve prevents food or drink from entering the lungs.

The wind-pipe extends to a point two inches below the top of the breast-bone, where it divides into a right and a left bronchial tube. Each divides and sub-divides into smaller tubes until they reach the air cells of the lungs.

The lungs occupy the greater part of the chest cavity. The lubricant which allows the lungs to move without friction is called the Pleura.

The act of breathing, or respiration, consists of *inspiration*, or drawing in the air by expanding the chest, and *expiration*, or expelling the air by contracting the chest. A pause follows the act of expiration. Respiration is caused partly by the muscles of respiration attached to the ribs expanding and contracting, but chiefly by the Diaphragm, which is a large arched muscular partition which divides the chest from the abdomen.

When air is drawn into the lungs the ribs expand and the diaphragm falls and becomes flattened, thus increasing the air space of the chest. In expiration the ribs fall and the diaphragm becomes arched, thus forcing the air out.

When the air is in the lungs oxygen is absorbed into the capillaries, and carbon dioxide—a poisonous gas—passes from the capillaries, and is breathed out of the lungs on expiration. If you sleep in a stuffy room (with windows closed) you use up the oxygen of the air until you are compelled to breathe the poisonous gases which you already expelled from your lungs. Scouts should show a good example to other members of the household by sleeping with windows wide open, avoiding draughts.

CHAPTER VII

THE NERVOUS SYSTEM

THERE are two systems of nerves: the Cerebro-spinal, which is under our control, and the Sympathetic, which is not under the control of the will.

The Cerebro-spinal System consists of—

The **Brain**. It is contained in the cranium, and with the exception of some connecting bands it is separated into a right and a left side. In the brain bodily and mental activity originate, and impressions from the organs of sensation are received and interpreted.

There is the large brain, or Cerebrum, which occupies the fore and upper parts of the skull, and the small brain, or Cerebellum, which occupies the back and lower portion of the skull.

There is a connecting link or mid-brain called Pons between the upper part of the brain and the Bulb (or *medulla oblongata*) which in turn connects the pons to the spinal cord.

The **Bulb** contains the centres from which circulation (the heart) and respiration (the lungs) are

supplied. The bulb lies in the lowest part of the skull.

The **Spinal Cord** lies within the spinal canal. It extends from an opening in the base of the skull to the upper lumbar vertebræ, and is divided by deep fissures into two halves.

The **Nerves** proceed from the brain and spinal cord in pairs, and their branches can be traced throughout the tissues of the body.

There are two kinds of nerves, viz., Motor and Sensory.

The **Motor Nerves** convey messages from the brain to the muscles, causing them to perform motions.

The **Sensory Nerves** convey messages from the organs of sense (ear, eye, tongue, nose) and the skin to the brain.

As an example of how the nerves work let us take the simple act of saluting a brother Scout in the street.

Rays of light pass from every visible part of the Scout (his uniform, badge, etc.), and fall upon the back of the eyeballs, where they produce an effect upon the sensory nerves. Impulses are started and travel along the optic nerves to the back of the brain, where they arouse—in the cells where the impulse ends—a set of changes, making us con-

scious that there is a Scout before us whom we wish to salute.

Immediately a desire arises to give the salute, an impulse passes to the motor centres of the brain, which in turn sends a message or motor impulse to the muscles. The message passes through the pons into the bulb, where it crosses and passes on to the muscles of the right arm, which contract to produce the bending of the arm and the Scout sign. If you intend to speak to the Scout a message is also sent to the tongue, lips, mouth, and the larynx, enabling you to speak.

It is important to note that the left side of the brain works the right side of the body, and the right side of the brain the left side of the body.

The **Sympathetic System** consists of a nervous chain on each side of the front of spinal column, sending branches to all organs of the chest and abdomen to control the involuntary muscles and thereby regulate the vital functions.

It is not under control of the will, but acts alike during sleep and activity.

CHAPTER VIII

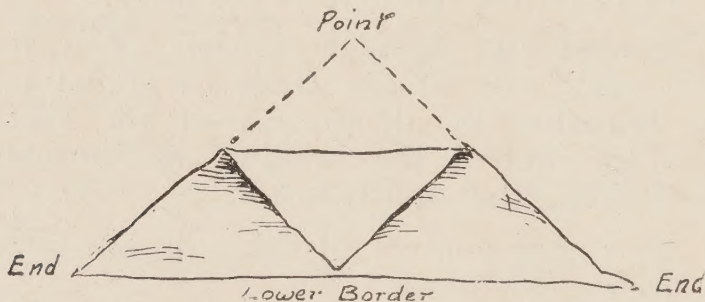
BANDAGES AND HOW TO USE THEM

THERE are several kinds of bandages, and the uses to which they can be put are many.

Those which we are most familiar with are the—

- (a) Triangular, and
- (b) Roller.

The **Triangular Bandage** is practically the only one used in First Aid work. It is made as follows:—



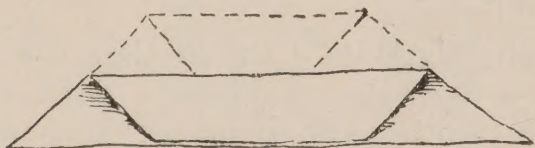
FULL-SIZED BANDAGE.

Cut a piece of linen or calico about forty inches square diagonally into two pieces. To enable you to understand the various uses to which it is put it

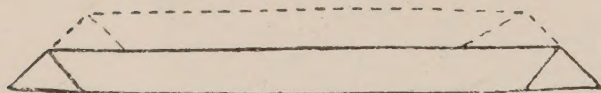
is necessary to know that the top (or right-angle) corner is called the "point," the other corners the "ends," the base of bandage is called the "lower border," and the other borders are called the "sides."

The Different Folds.

To make a broad fold bandage bring the point down to meet the lower border, then fold once again. The narrow fold bandage is made by folding the broad fold bandage in two.



BROAD FOLD BANDAGE.



NARROW FOLD BANDAGE.

Triangular bandages may be improvised from handkerchiefs, Scout scarves, neckties, or anything of that nature, care being taken that dye or colouring is not placed next to a wound.

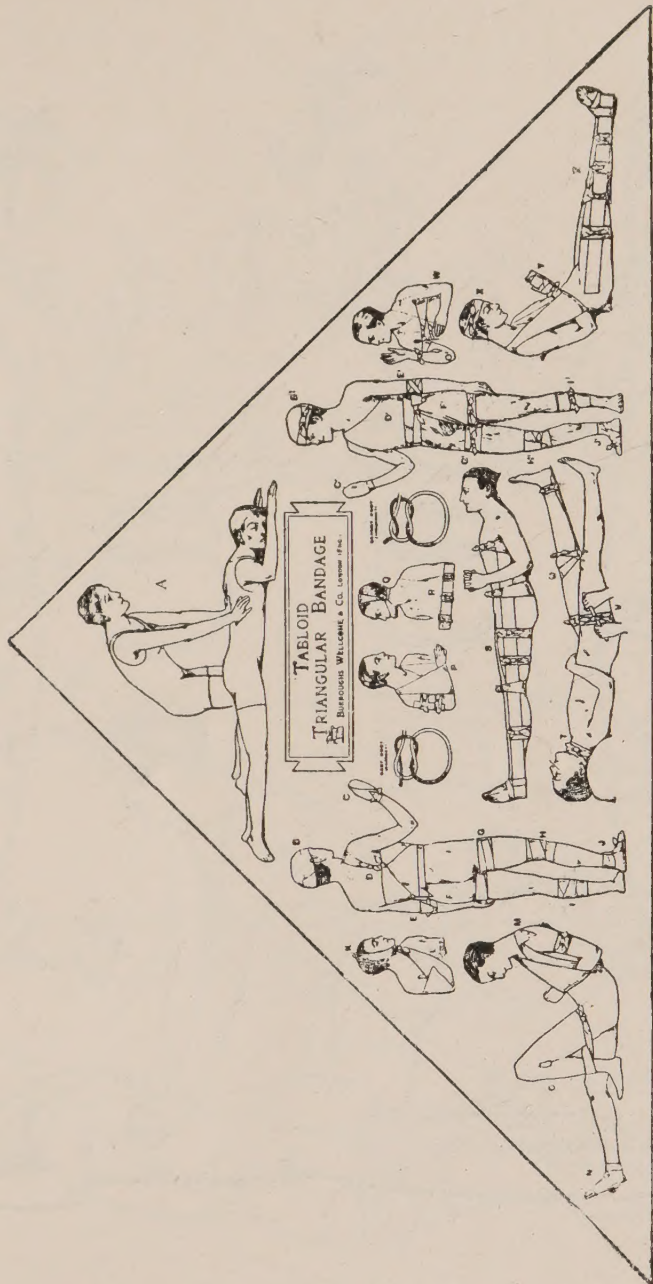
The uses of the triangular bandage are :—

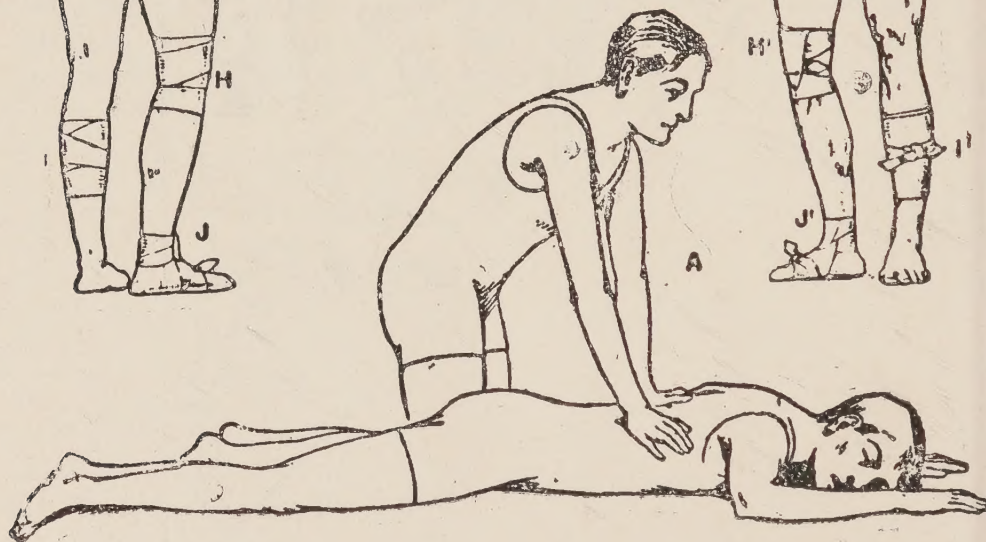
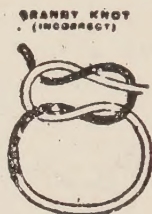
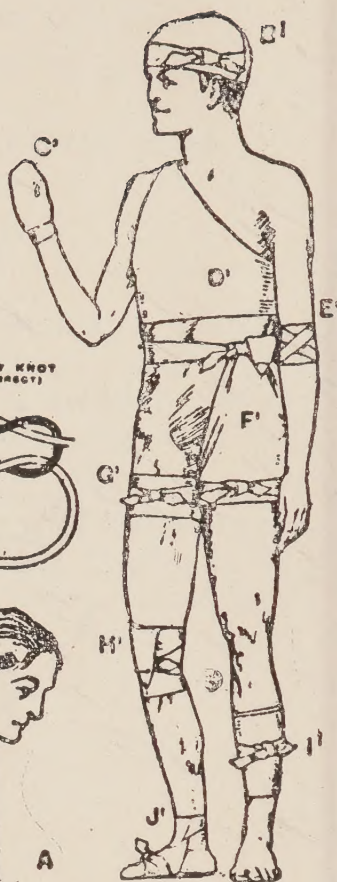
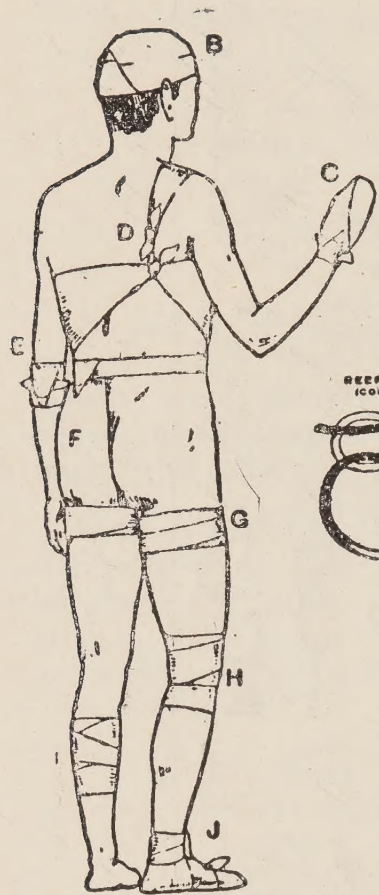
- (a) To form pads to stop bleeding by pressure.
- (b) To keep dressings in place.
- (c) To form slings to support injured parts.
- (d) To hold splints in place.

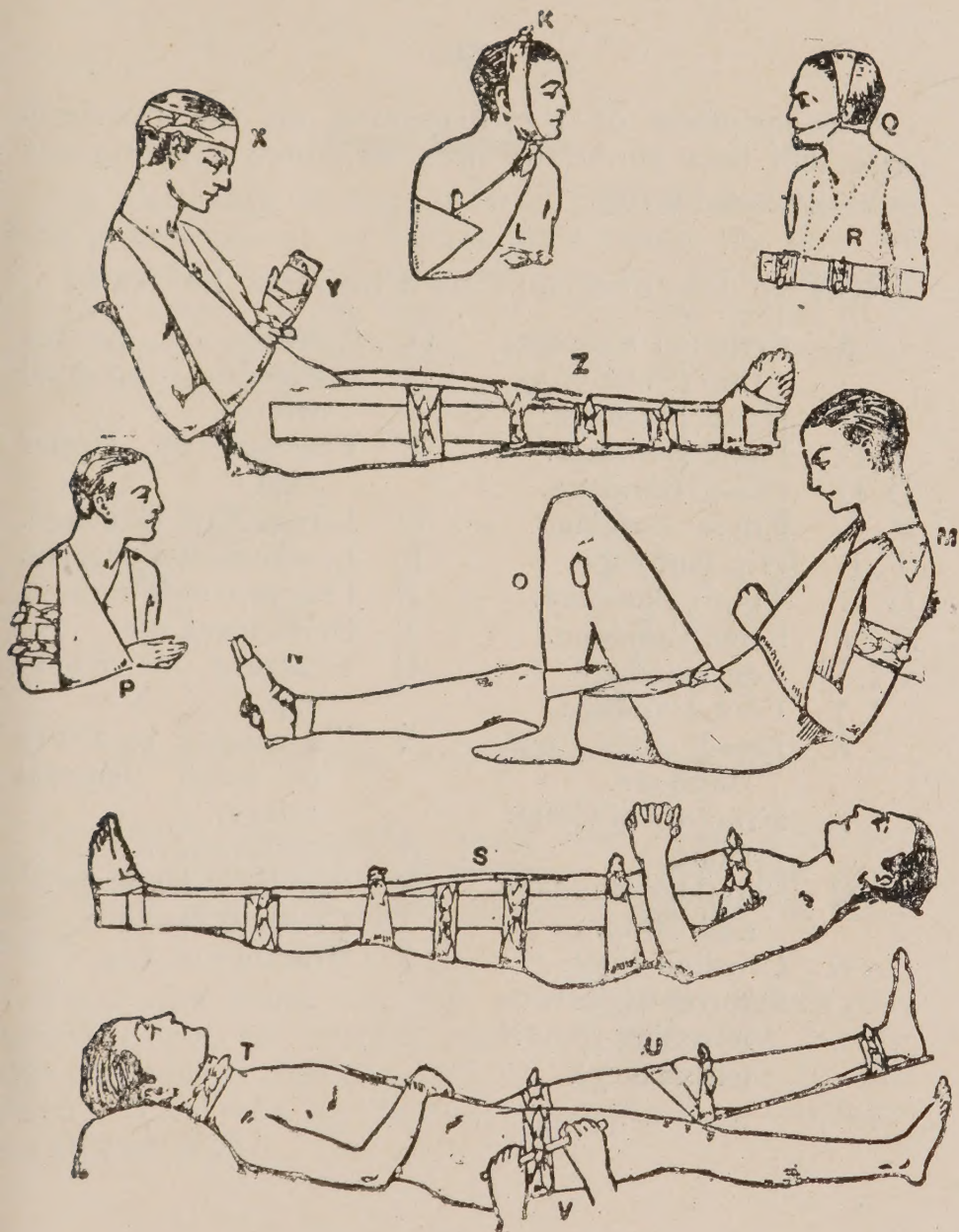
To Form Pads.

A pad is made by folding the bandage as you would when you are stowing it away. As many Scouts may not know how to fold a bandage after they have finished with it, the following may be found useful :—

Fold the bandage in half so that the ends meet. This forms a half-size bandage. Turn the ends in to meet the point. The bandage is now in square shape; fold it in half and once or twice again, according to the size of pad required.







A description of the diagrams on the previous page will best show the uses to which a triangular bandage can be put.

KEY TO ILLUSTRATIONS ON PICTORIAL BANDAGE.

A	Artificial Respiration (Schäfer's).	O'	Control of Severe Bleeding (brachial artery).
B, B'	Head Bandage.	P	Fracture of Upper Arm.
C, C'	Hand Bandage.	Q	Lower Jaw Bandage.
D, D'	Chest Bandage.	R	Fracture of Forearm.
E, E'	Elbow Bandage.	S	Fracture of Thigh.
F, F'	Hip Bandage.	T	Neck Bandage.
G, G'	Thigh Bandage.	U	Fracture of Knee-cap.
H, H'	Knee Bandage.	V	Tourniquet to artery of thigh (femoral artery).
I, I'	Leg Bandage.	W	Fracture of Ribs.
J, J'	Foot Bandage.	X	Forehead Bandage.
K	Head and Face Bandage.	Y	Crushed Hand.
L	Fracture of Collar Bone.	Z	Fracture of Leg.
M	Shoulder Bandage and Sling.		
N	Crushed Foot.		
O	Control of Severe Bleeding (popliteal artery).		

Head Bandage.

For the scalp or top of head take a bandage and fold a hem about $1\frac{1}{2}$ inches deep along the base of it; place the bandage on the head so that the hem is close down on the eyebrows, with the centre of it just above the eyebrows, and the point hanging down at the back.



(See also illustration B on Triangular Bandage.)

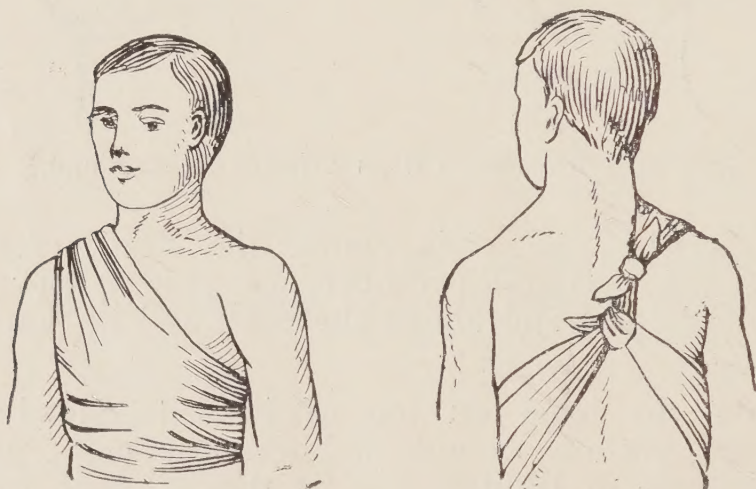
Carry the two ends round the head, crossing below the occipital protuberance (where the neck and head join) and above the ears, and tie on forehead.

Place the hand on top of head to steady the dressing put on wound, and pull the point gently downwards to tighten and fit the bandage to the head. Now turn up the point and pin it to bandage on top of head.

Hand Bandage.

Place the hand palm downward on the centre of the bandage with fingers towards the point. Bring point over the wrist, and the ends round the wrist, and cross and tie them. If necessary, make a second turn round wrist before tying. Bring the point over the knot and pin it to the bandage on the hand. (See illustration C on Triangular Bandage.)

Chest Bandage.

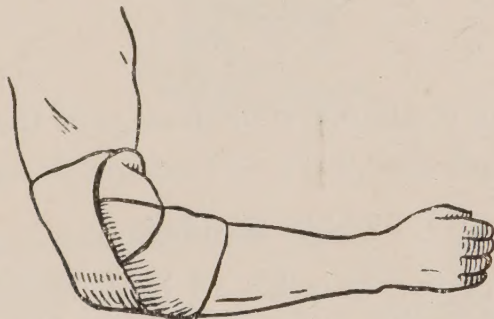


(See also illustration D on Triangular Bandage.)

Place the middle of the bandage over the dressing, pass the ends round the waist, and knot off on the other side, leaving a long end. Draw the point over the shoulder and tie to the long end.

Elbow Bandage.

Place the centre of a bandage over the back of the elbow (bent), point upwards. Turn up a narrow hem along the base of bandage.



Cross the ends first in front of the elbow, then over the arm and tie them in front.

Hip Bandage.

Take a narrow fold bandage, tie it round the waist and knot off on the injured side. Take another bandage, place the centre of it over the hip, point upwards, the lower border—with hem folded in—lying across the thigh. Carry the ends

round the thigh and knot off on the outer side. Draw the point up under the first bandage, turn down over the knot and pin off.



(See also illustration F on Triangular Bandage.)

Thigh Bandage.

Place the centre of a broad fold bandage over the dressing, carry the ends round the thigh and knot over the dressing.

(See illustration G on Triangular Bandage.)

Knee Bandage.

This bandage is applied in a similar manner to the elbow bandage. (See illustration H on Triangular Bandage.)

Leg Bandage.

Apply the bandage in a similar manner to the thigh bandage. (See illustration I on Triangular Bandage.)

Foot Bandage.

This is applied in a similar manner to the hand bandage. Place the sole of the foot on the centre of a



(See also illustration J on Triangular Bandage.)

bandage, toes towards the point. Draw the point up over the instep, carry the ends round the ankle and cross them in front. Now draw the point up to tighten the bandage, pass the ends round the instep and tie on top. Finish off by drawing the point forward and pin it to the bandage on the instep.

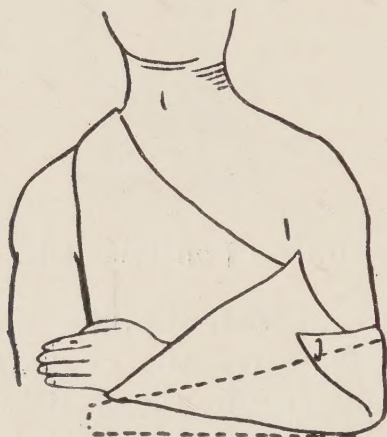
Head and Face Bandage.

Place the centre of a narrow fold bandage over the dressing, pass the ends round, cross and knot off over the dressing.

(See illustration K on Triangular Bandage.)

Bandages for Fracture of Collar-bone.

Take a triangular bandage, throw one end over the shoulder on the sound side. Place a pad under the armpit (see that it does not press on the artery). Bend the forearm across the chest and gently raise the shoulder until it is at the same level as the other shoulder. Bring up the other end of



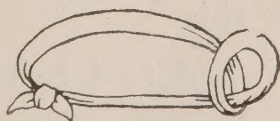
bandage in front of forearm, pass it through between the arm and side (where the pad is) and knot to the other end behind the neck. See that hand is pointing upwards. Draw the point of bandage round the elbow and pin off.

With a narrow fold bandage (see dotted lines) fix the arm and thus relieve pain and prevent further injury.

The "St. John" sling as shown in Fig. L on the Triangular Bandage is made as follows:—

- (a) Lay an unfolded bandage across the chest over the injured limb with one end on the uninjured shoulder and the point beyond the elbow on the injured side.
- (b) Pass the lower end of the bandage under the injured limb, across the back, and tie the ends somewhat loosely in the hollow in front of the sound shoulder.
- (c) Fold the point over the elbow of the injured limb and secure it by one or two pins.
- (d) Tightly secure the injured limb to the side by a broad bandage passed round the elbow and trunk, so as to lever out the shoulder, the pad forming the fulcrum.
- (e) Now tighten the sling.

Another way is to place a pad in the armpit and bandage as shown in our two small illustrations.



Shoulder Bandage and Sling.

Lay the centre of a triangular bandage on the top of shoulder, point upwards, and the lower border



(See also illustration M on Triangular Bandage.)

round the centre of arm. Fold in the lower border, pass the ends round the arm, cross them and knot off on the outer side.

Apply a broad fold bandage as a sling, draw up the point of shoulder bandage, fold it back on itself and pin off.

Bandage for Crushed Foot.

Apply splint to sole of foot, then bandage as for the foot. (See illustration N on Triangular Bandage.)

Flexion Bandages.

To control severe bleeding of the popliteal artery (below knee), or the brachial artery (below elbow), apply a pad at the joint and bend the limb over the pad, and bandage it to the part above. (See illustrations O and O' on Triangular Bandage.)

Bandages for Fracture of Upper Arm.

Narrow fold bandages are applied above and below the wound to keep the splints in place. The sling is a broad fold bandage. (See illustration P on Triangular Bandage.)



Bandage for Lower Jaw.

Place the palm of the hand below the injured bone and press it gently against the upper jaw. Place

the centre of a narrow bandage under the chin, carry one end of bandage over the head, cross the ends at the angle of the jaw, carry the long end across the chin, and tie the ends on the side. (See also illustration Q on Triangular Bandage.)

Bandages for Fracture of Forearm.

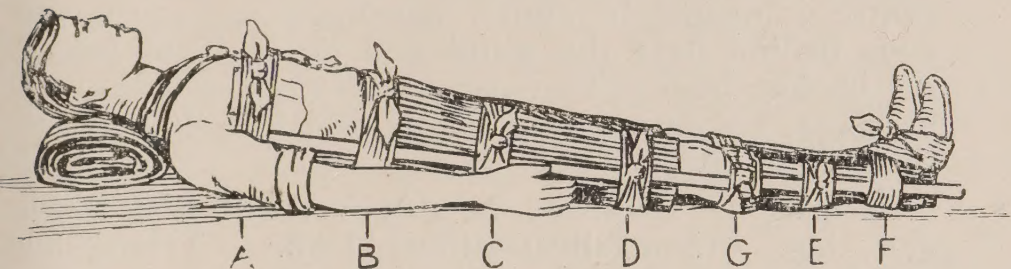
These are applied in the same manner as for the upper arm. (See illustration R on Triangular Bandage.)



The bandages can also be doubled at the centre and passed under the limb, the loop being brought over on top. The ends are passed through the loop in different directions, as shown, and tied on top.

Bandages for Fracture of Thigh.

The splint extends from the armpit to the heel.



(See also illustration S on Triangular Bandage.)

Secure the splints by bandages as follows:—

- (a) Round the chest just below the armpits.
- (b) Round the pelvis on a level with the hip joints.
- (c) Above the fracture.
- (d) Below the fracture.
- (e) Round the leg.
- (f) Round both ankles and feet, and tied below the feet.
- (g) A broad bandage round both knees.

Neck Bandage.

Place centre of bandage on the wound, pass the ends round and tie over wound. (See illustration T on Triangular Bandage.)

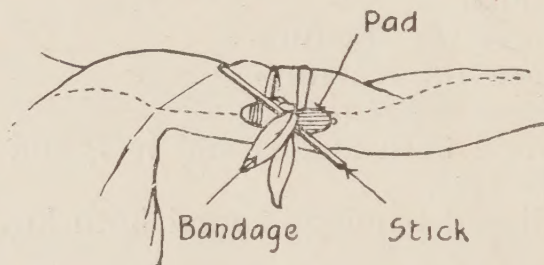
Bandage for Fracture of Knee-cap.

The splint extends at back of leg from the hip to beyond the heel. Apply a narrow bandage with its centre immediately above the knee-cap, cross the ends behind over the splint and tie in front below the broken bone. To ensure firmness apply another bandage, commencing it below and knotting above the broken bone.

Secure the splint by bandages round the thigh and leg. (See illustration U on Triangular Bandage.)

Bandage as Tourniquet.

Tie a narrow fold bandage loosely round the limb, place a pad on the point of compression. Now place the centre of the bandage on the pad, and with a



piece of stick twist the loose end of bandage until effectual pressure is applied.

Do not keep a tourniquet on too long; three hours is the extreme limit.

Bandages for Fracture of Ribs.

Apply two broad bandages (during expiration), the centre of the first immediately above and that of the second immediately below, the fracture. The lower bandage overlaps the upper to half its extent. Knot off on opposite side from the fracture and to the front. (See illustration W on Triangular Bandage.) Place the arm on injured side in a sling.

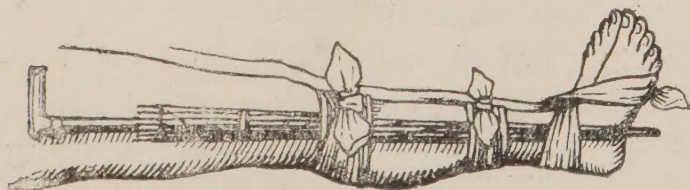
Bandage for Forehead.

Place centre of narrow fold bandage on dressing, pass the ends round and knot off on top of dressing. (See illustration X on Triangular Bandage.)

Bandage for Crushed Hand.

Padded splint apply to front of hand, reaching from well above the wrist to beyond the tips of the fingers. Apply a narrow bandage in figure of eight to the wrist and hand. (See illustration Y on Triangular Bandage.)

Bandage for Fracture of Leg.



Apply bandages in a similar manner as for fracture of thigh. (See illustration Z on Triangular Bandage.)

Large Arm Sling.

Take a bandage, throw one end over the shoulder on the sound side, carry it round the neck so as to lie over the opposite shoulder. Place the point behind the elbow of the injured arm. Bend the



arm carefully and place it across the chest with the hand pointing upwards. Bring the lower end of bandage up and tie to the end hanging over shoulder. Draw the point forward round the elbow and pin off.

Bandage for Wrist and Forearm.

Start as shown in Fig. D, and carry the bandage up the arm, folding the bandage on itself at each turn, Fig. E.

In this manner the bandage will fit closely to the limb, and can be taken as far up the arm as required.

Bandage for Elbow.

Lay the bandage over the front of the joint A B, Fig. C, then take a circular turn round the arm above the elbow, and next draw the bandage across the arm (C D, Fig. C), crossing A B at the bend of the elbow.

Next take a circular turn round the arm D E F.

Repeat the whole process, each time bringing the turns nearer the joint and having the crossings at the bend of the elbow.

Bandage for Cut Finger.

Cleanse the wound and cover with a small portion of Boric Gauze, over which bind two layers of lint.

Lay the bandage over back and front of finger (A B C, Fig. A), and by circular turns up to finger tip and then back to knuckle bind the finger firmly.

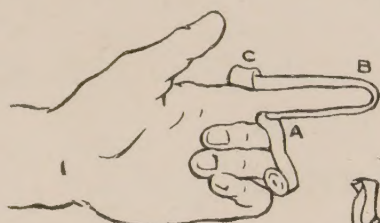
Finally, pass bandage over back of hand and secure by turns round the wrist (Fig. B).

Bandage for Leg.

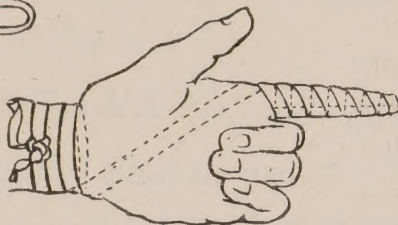
Raise the foot and secure the bandage round the ankle by crossing the end in the front of it as represented in Fig. F.

The bandage is then carried beneath the foot and again round the ankle once or twice, and then round the leg, each turn overlapping the preceding one.

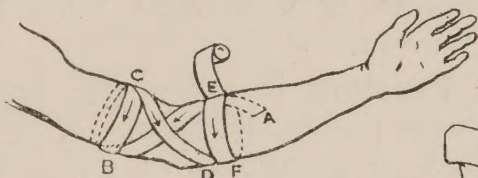
Turn the bandage down at each turn and proceed as for bandaging the arm.



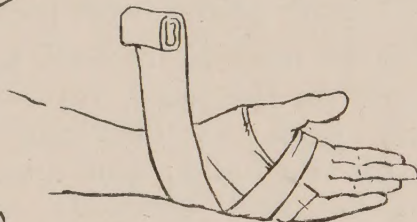
A



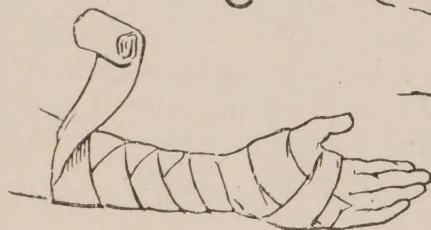
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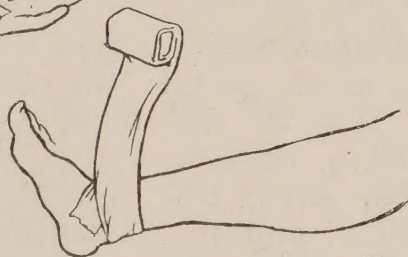
C



D



E



F

CHAPTER IX

FRACTURES

FRACTURES are Broken Bones.

There are two main classes of fractures, Simple and Compound.

- (a) A **Simple Fracture** is a broken bone with no outward wound.
- (b) A **Compound Fracture** is when the broken ends of the bone pierce the skin.

Fractures may be caused by direct violence, such as a blow on the head, fracturing the skull; indirect violence, such as breaking your collar-bone by falling on the hand; and muscular action, when the muscles contract suddenly and snap the knee-cap (*patella*) as in jumping from a height.

There are several varieties of fractures:—

The **Comminuted**, where the bone is broken into two or more pieces; the **Complicated**, where the jagged end of the bone has severed an artery, lung, nerve, or injured the surrounding parts; the **Impacted**, where the broken ends are driven into each other; and the **Greenstick**, where the bone is bent and not completely broken, as in the case of young children.

The signs by which a fracture may be recognized are :—

- (a) Pain.
- (b) Swelling and deformity at the seat of injury.
- (c) Loss of power in the limb.
- (d) Unnatural movement where none should exist.
- (e) *Crepitus*, a sensation of grating caused by the broken ends of the bone moving against one another.

Important.—The last two signs (d) and (e) should not be sought for except by those highly skilled in first aid work.

When in doubt treat as a fracture.

TREATMENT OF FRACTURES.

In the treatment of fractures your duty is to prevent further mischief. To do so the injured limb should be fixed *at once* with splints and bandages, bearing in mind the following :—

- (1) Attend to the patient on the spot where injury occurred.
- (2) Arrest any severe bleeding.
- (3) Use care in handling the injured limb.
- (4) Steady and support the limb so that further movement by the patient is prevented.

- (5) Straighten the limb with great care, but do not attempt to get into an absolutely natural position; leave such treatment to the doctor.

In all cases of fracture "shock" is present more or less, and the patient should be kept as warm as possible.

Splints.

For the "first aid" treatment of fractures, splints can be made of various articles in daily use, such as broom handles, wine bottle covers, newspapers, walking sticks, Scout poles, or, in fact, anything which gives rigid support by being sufficiently stiff to keep the parts in position.

Splints should be long enough to extend for some distance above and below the seat of injury and as broad as the limb applied to. Pad them well with anything soft, such as hay, leaves, cotton-wool, bandages, etc., so that they will not press too tightly on the skin.

To apply the splints two boys are required: one to make a gentle extension of the limb by grasping it very gently but firmly above and below the seat of injury to restore it to its natural position as far as possible. The other boy applies the splints, one on each side of the limb, with the padding next

the limb, and fixes them in position by means of triangular bandages above and below the seat of the fracture.

The common fractures and how to treat them will be found in the chapter dealing with "Bandages and How to Use Them."

Dislocation.

A dislocation is an injury where the head of a bone has slipped out of its socket at a joint. A Scout is playing football: he suddenly feels as though his shoulder has been twisted out of its place.

Comparison with the other side will show that the injured shoulder does not look like the other one, being longer or shorter, and, contrary to the case with fracture, there will not be increased movement at the point of injury, but a lessened movement.

Do not attempt to get a dislocated joint back in place. Cover the joint with cloths wrung out in very hot or very cold water, and get the patient into the hands of a doctor as soon as possible.

Sprains or Strains.

A sprain is often called a "missed dislocation," being a straining or tearing of ligaments, which surround a joint, by a sudden wrench or twist.

Falls, or any sudden and unnatural movement of a joint, cause a sprain.

The signs of a sprain are pain, heat, and swelling at seat of injury, followed by discoloration of skin.

TREATMENT.

We will deal with the ankle, as it is the most likely place to be sprained. Treat as follows:—

When out of doors—

1. Apply a bandage tightly over the boot, beginning on the sole at the instep, crossing it on the front of the ankle, and carrying it round and round the ankle, where it is to be firmly tied.
2. Wet the bandage after application; it is thereby tightened.

After reaching shelter—

1. Remove the boot and stocking.
2. Place the limb in the most comfortable position; usually, that is, well raised.
3. Apply ice or cold water dressings to the joint as long as they relieve pain.
4. When cold fails to give comfort, apply hot fomentations.

When other joints are sprained, treat them as if dislocated.

When in doubt as to the nature of the injury, treat as a fracture.

CHAPTER X

BLEEDING AND HOW TO STOP IT

BLEEDING, or Hæmorrhage, is of three kinds:—

1. **Arterial.**—This is the most serious form of bleeding. The blood is bright scarlet and spurts out in jets corresponding to the pulsation of the heart from the side of the wound nearest the heart.

2. **Venous.**—Blood is dark purple in colour and flows in a continuous stream from the side of wound farthest from the heart. It is next in seriousness to arterial.

3. **Capillary.**—The least dangerous form. The blood oozes from the whole surface of the wound. The colour of the blood is brick-red.

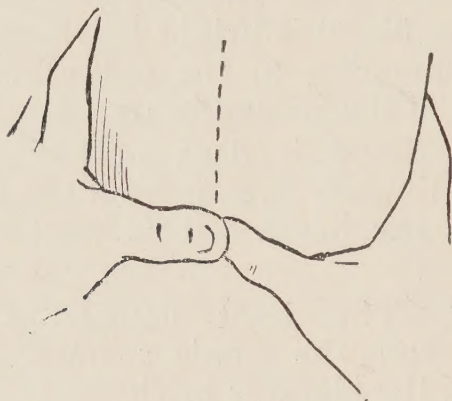
Bleeding may either be external, and usually caused by injury, or internal, and due more often to disease. When from the lungs it is frothy, and when from the stomach it is darker in colour and mixed with food.

HOW TO ARREST BLEEDING.

Apply pressure as follows:—

- (a) Digital, or with the fingers, direct on the wound on the point (×), indicated on the large diagram on p. 47.

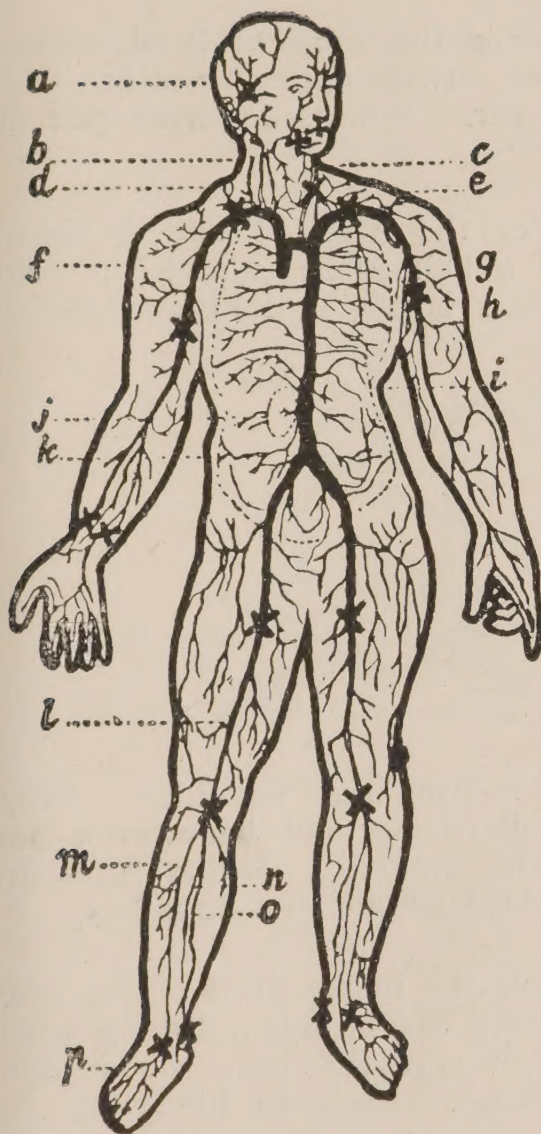
- (b) By a pad and bandage at the point $\times$ of pressure or direct on the wound.
- (c) By a tourniquet, as explained in chapter on "Bandaging."
- (d) By flexion, as also explained in chapter on "Bandaging."



POINTS OF COMPRESSION AND TREATMENT.

Temporal Artery.—For the temple, front or top of head. Press directly against the bone (digital pressure) about one finger-breadth in front of opening of ear. Then place pad on artery and retain in position with bandage.

Facial Artery.—For the face below the eyes. Press directly against the bone one inch in front of angle of jaw, then supersede with pad as above.



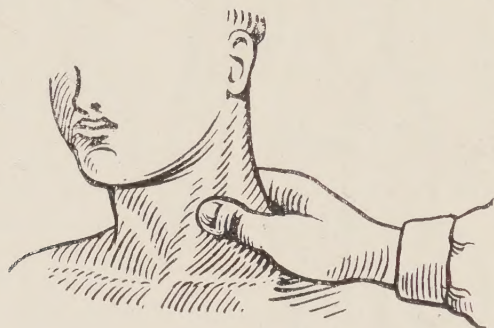
The Crosses **X** show where to compress to stop bleeding.

a, Temporal artery; *b*, carotid artery; *c*, vertebral artery; *d*, *e*, subclavian artery; *f*, aorta, or great artery; *g*, axillary artery; *h*, brachial artery; *i*, celiac artery; *j*, renal artery; *k*, iliac artery; *l*, femoral artery; *m*, posterior tibial artery; *n*, anterior tibial artery; *o*, peroneal artery; *p*, pedal artery.

Position of Main Arteries.

Occipital Artery.—For the back of head. Press directly against bone two finger-breadths from centre of back of ear. Supersede with pad as above.

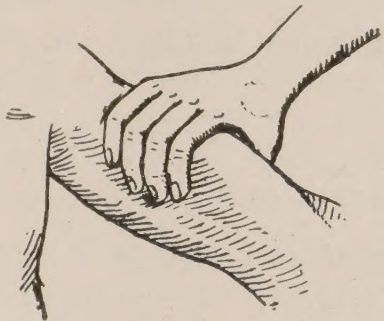
Carotid Artery.—For the neck. Press as shown in diagram one and a half inches above the joint of the breast and collar bones, or midway between ear and breast-bone.



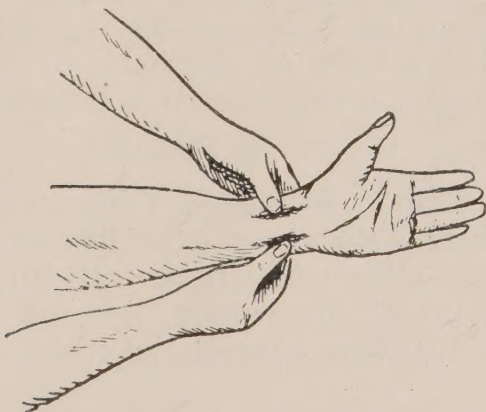
Subclavian Artery.—For the shoulder. Press behind middle of collar-bone and backwards and downwards against the first rib. Digital pressure superseded by the padded handle of a door key.

Axillary Artery.—For the upper third of the arm. Press at a point where it can be felt pulsating when the fingers are deeply pressed into the armpit. Digital pressure is difficult to apply to this artery.

Brachial Artery.—For the lower two-thirds of the arm. Press at middle of arm as shown. The inner coat-sleeve above the elbow roughly indicates course of artery. The artery may also be compressed by flexion at the elbow. For the forearm press at bend of elbow.



Radial and Ulnar Arteries.—For the palm of the hand. Press at point shown one inch above wrist. A bandage with two knots, close to each other,



makes a good compress when the knots are placed on the arteries and then tied tightly round the wrist.

Another method for the palm of the hand is to first dress the wound, place a hard pad in the palm, close the fingers on it and bandage.

Femoral (Common) Artery.—For the upper part of thigh. The course of the artery may be indicated by a line drawn from the centre of the groin to the inner side of the back part of knee. Apply digital pressure, one thumb on the other.

Femoral (Superficial) Artery.—For the lower part of thigh. The artery passes along a line drawn from middle of bend of groin to inner side of knee. Digital pressure at middle of thigh outwards against the femur, superseded with tourniquet.

Popliteal Artery.—For the leg. This artery is a continuation of the Femoral Artery, where it passes behind the thigh-bone to the back of the knee joint. Apply a pad, about the size of a tennis ball, and flex the leg.

Posterior Tibial Artery.—This artery and the Anterior Tibial Artery are branches of the Popliteal Artery. Press where it can be felt pulsating behind the large bone at the inner side of ankle. Press forward and outward against the tibia.

Anterior Tibial Artery.—After leaving the Popliteal, this artery passes forward between the leg bones, and, deeply placed among the muscles, runs down the leg to the centre of the front of ankle.

Varicose Veins.—A vein becomes varicose from several causes, such as long standing or tight garters. Extra work is thrown upon the valves, blood accumulates behind them, and bead-like projections are formed.

In time the vein becomes so dilated, or varicose, that the valves can no longer span it.

Elevate the part, expose the wound, remove any restrictions, such as garters, from the heart side of the wound. Apply digital pressure on the wound until you can apply an antiseptic pad and tight bandage. If that does not stop the bleeding make pressure on the side from the heart. If you cannot maintain the limb in an elevated position apply a pad and bandage to the vein immediately above the wound.

Internal Bleeding.

Internal bleeding is best treated as follows: Lay the patient flat, with the head low; undo all tight clothing round neck and chest and allow free circulation of air. If you have it, give ice to suck; apply ice bag over the injured part.

Wounds and How to Treat Them.

Wounds are of different kinds, according to the instrument which causes them.

1. **Incised or Clean-cut Wound**, which is produced by a sharp-edged instrument. The edges are cleanly divided and there is more or less free bleeding.

2. **Contused or Bruised Wound**, which is produced by a blunt-edged instrument. There is bruising, but little or no outward bleeding. The parts become discoloured where the little bloodvessels under the skin have been burst.

3. **Punctured or Stab Wound**, produced by sharp-pointed instruments. Often results in considerable bleeding and deep internal injuries.

4. **Lacerated Wound**, caused by dog bite or machinery in motion. Ragged-edge wound, but very little bleeding.

IMMEDIATE TREATMENT.

In treating wounds first stop the bleeding, then if the injured part be dirty cleanse the wound with cotton-wool and an antiseptic solution, or with boric lint, wrung out in warm water, or with boiling water. Do not cleanse the wound if medical assistance is readily available.

The wound is now dressed by placing a pad of boric lint (or gauze) over it and covering with cotton-wool; or by taking a piece of lint, soaking it in antiseptic solution and placing over the wound, covering with jaconet (rubber tissue). Cover with cotton-wool and bandage to keep dressing in position.

Rest the wounded part by means of a sling.

Caution.—Never be tempted to undertake the entire treatment of any but the most trifling wound. Disastrous consequences may result from such attempt to supplant the doctor.

CHAPTER XI

BURNS AND SCALDS AND THEIR TREATMENT

WHEN you take hold of the heated end of a poker after it has been in the fire your hand is burned by means of dry heat. If when taking the poker out of the fire you upset the contents of the billy over your leg or foot, your foot is scalded. A burn is dry heat; a scald, moist heat.

There are three degrees of burns, which differ according to the extent of injury, viz.:—

1. A mere reddening of the skin, a simple burn.
2. The formation of blisters.
3. Charring—the most dangerous stage.

Burns and scalds, in addition to the actual destruction of the tissues, produce—

- (a) Shock, which is the great danger. Burns of the abdomen and chest are especially liable to produce marked shock, and in children suffering from burns and scalds shock is usually profound. Exposure to the air especially aggravates the condition of shock.
- (b) Congestion of the internal organs,

TREATMENT.

In the management of burns and scalds two points have to be borne in mind:—

1. The treatment of the local injury.
2. The treatment of shock.

If the shock is severe, treat it first, and wait till reaction sets in before treating the local injury.

The Signs of Shock or Collapse are:— Patient becomes weak, voiceless and shivers, and his body is cold and clammy.

Heat must be applied to the body by covering the patient up with hot blankets, and putting hot water bottle (with cover) to feet. Give warm stimulating drinks.

When patient recovers sufficiently treat the local injury as follows:—

In attending to this, care should be taken that the clothing is removed with the utmost care from the burnt part, and that no blisters are broken.

The clothing should be cut off, and if parts of it adhere, they should be removed by soaking them in oil; and if this is not sufficient the parts should be immersed in a bath of warm water.

Dressing.—For slight burns, in order to relieve the pain some dressing to exclude the air is needed. Very good dressings of this character are pastes made with water and baking soda, Olive, Castor, or Carron Oils, equal parts Lime Water and Linseed

Oil, Carbolized Vaseline and fresh Lard are all good. One of these substances should be smeared over a thin piece of cloth and placed on the burned part. A bandage should be put on over this to hold the dressing in place and for additional protection. Severe burns and scalds are very serious injuries which require treatment from a doctor. Pending his arrival the Scout should remember to treat the sufferer for shock as well as to dress the wound. Burns from electricity should be treated exactly like other burns.

Sunburn.

If you take sunburn gradually, a little each day, it doesn't hurt. But if at first you foolishly expose your white skin, arms, or neck to the blaze of the summer sun for a few hours you will pay a heavy price for it. At night you will be in a torment of fever fire. The punishment may last for days. Huge blisters will arise, and you may be obliged for a time to give up all active sports.

Grit in the Eye.

The eye should not be rubbed. Pull down the lower eyelid and remove the grit with the corner (wet) of a handkerchief or a camel's-hair brush.

If the grit is beneath the upper lid, lift the lid, lay a match behind it (see illustration) and remove the grit,

If you cannot dislodge the foreign body send for, or call on, a doctor as soon as possible. When a piece of steel is embedded in the eyeball drop a little olive



or castor oil on the eyeball, close the lids, place a soft pad of cotton wool on the eye, and bandage firmly to keep the eyeball steady. Take the patient to a doctor.

Should some lime get into the eye, brush away as much of it as possible, then bathe the eye with vinegar and warm water. Treat as for embedded steel.

Earache.

Hot cloths, a bag of heated salt, or a hot bottle applied to the ear, will often cure earache. A few drops of alcohol on a hot cloth, so placed that the alcohol fumes enter the ear, will often succeed. If neither is effective, heat a few drops of sweet oil as hot as you can stand, put a few drops in the ear and plug with cotton. Be careful that it is not too hot.

If none of the above are effective a doctor should be consulted in order to prevent bad results with possible loss of hearing.

CHAPTER XII

INSENSIBILITY AND FITS

UNCONSCIOUSNESS or insensibility may be due to so many causes that in order to give intelligent treatment the Scout should first find out the cause.

Complete loss of consciousness may be produced by any of the following causes:—

Shock, Fainting (Syncope), Collapse, Heatstroke, Sunstroke, Freezing, Alcoholic and other poisoning, Asphyxia, Infantile Convulsions.

Disease of the Brain.—Apoplexy, Epilepsy, Hysteria.

Injury to the Head.—Concussion and Compression of the brain.

Always try to find out the cause if you can. If you cannot do this, however, you should at least determine whether unconsciousness is due to bleeding, sunstroke, poison, or to freezing, for each of these demands immediate, special treatment.

Fainting or Syncope.

This is the commonest form of insensibility. It is caused by partial paralysis of the heart diminish-

ing the supply of blood to the brain, brought about by mental emotion, hæmorrhage, extreme exhaustion, cold, heat, constriction of the chest or neck (in tight-fitting garments), want of food, and organic disease of the heart.

The Symptoms are:—

A feeling of giddiness and fluttering at the heart; the face becomes pale and the lips white. The pulse is weakened and the breathing is quickened; cold sweat appears on the brow and the patient staggers and falls to the ground in an unconscious state.

TREATMENT.

As fainting is caused by a diminution of the supply of blood to the brain, the treatment will naturally be to restore that supply. When a person faints do not attempt to stand him on his feet, but lay him flat with the head low. Raise the lower limbs. Loosen tight clothing about the body and neck. Give him plenty of fresh air. Stimulate the action of the heart by giving sal volatile and water if patient can drink, or sprinkle cold water in his face and apply smelling salts to the nostrils.

Prevention is better than cure. You may see the symptoms of fainting coming on a person. If so, place his head well between his knees and hold him in this position.

Shock or Collapse.

The injuries which are most liable to produce shock are crushing or tearing of the body as in machinery and railway accidents, or injury to large surfaces of the skin as in burns and scalds, also injuries to the abdomen.

The symptoms are :—

Body is cold and clammy, limbs soft (or flaccid), no spontaneous movement is made; face is pale, eyes sunken, pulse feeble and irregular; respirations shallow, feeble and sighing; more or less unconscious.

TREATMENT.

When a case of shock terminates favourably a condition known as “reaction” sets in. This is best brought about by the application of warmth to the body.

Place the patient between blankets in bed as soon as possible, keep his head low, apply friction to the arms and legs, and apply hot-water bottles to the feet. Give small quantities of stimulants till reaction shows itself.

When the reaction sets in the patient usually vomits, colour returns to his face, and his body becomes warmer.

Compression of the Brain.

Caused by an injury to the head, which produces pressure on the substance of the brain, either by a blood-clot or a piece of bone.

Symptoms are similar to apoplexy. If there is a wound, dress it and treat as for apoplexy.

Concussion of the Brain.

Caused by blow, or fall on the head, or lower end of spine, which 'shakes up' the brain substance severely.

The Symptoms vary according to the force of the blow applied, the patient being merely stunned, or in a condition similar to shock.

TREATMENT.

Treat as for shock, and apply wet cloths or ice to the head. Give patient hot coffee or beef tea and keep him quiet in a darkened room.

Apoplexy.

Caused by the bursting of a diseased blood-vessel on the surface or in the surface of the brain, causing compression. Usually occurs in elderly people.

SYMPTOMS.

The face is flushed, breathing deep, slow, and stertorous. Patient is more or less unconscious, the eyes are insensitive to light and touch; the pupils are unequally dilated, or one or both pupils may be contracted. There is paralysis affecting one side of the body. The pulse is full and slow.

TREATMENT.

Loosen all tight clothing about the neck and chest to free the heart action from embarrassment and to get the circulation quiet. Keep head raised and apply cold water to it. Apply hot-water bottles to his feet. Give no stimulants. Send for a doctor.

As apoplexy is sometimes taken for drunkenness, note that with apoplexy the skin is warm under the clothes, in drunkenness it is cold. In drunkenness the eye is sensitive to touch and there is absence of paralysis. If in doubt treat for apoplexy.

Epileptic Fits.

There is unconsciousness and convulsive movements. The patient shrieks, falls down, and the muscles become rigid. This is followed by convulsions, the body being thrown into violent twitching contortions, with foaming at the mouth. The jaws clench together and the tongue may be bitten.

The convulsions last a few minutes, to be followed by a period of partial unconsciousness. The patient finally falls into a deep sleep.

TREATMENT.

Place the patient in a safe position and prevent him from hurting himself. Put a piece of wood between his teeth to prevent him from biting his tongue. Raise the head and shoulders and loosen all tight clothing. Do not administer anything by the mouth until after the patient has slept, when beef-tea or soup can be given.

Hysterical Fits.

Hysteria occurs more often in females than in males.

The fits come on without any obvious cause, the patient sobbing, laughing, and crying. The breathing is quickened and the eyelids closed. In severe cases the patient falls down "softly," taking care not to hurt herself.

TREATMENT.

Let patient severely alone, make no fuss with her. As she realizes that her condition is causing no excitement she will soon come round to herself.

CHAPTER XIII

POISONING AND ITS TREATMENT

MOST boys know that a poison is some substance that gets into the system, internally or externally, and injures health or destroys life.

There are several classes of poisons with different symptoms :—

- (a) The **Corrosives**, such as mineral acids, caustic alkalies, oxalic acid, etc., soften and destroy the skin and other parts with which they come into contact.
- (b) The **Irritants**, such as arsenic, essential oils, salts of antimony, etc., cause inflammation of the part to which they are applied.
- (c) The **Narcotics**, such as opium, belladonna, chloral, alcohol, poisonous gases, etc., which act on the nervous system and produce delirium, convulsions, stupor, or coma.

We now come to the last class of poison, which is a combination of (b) and (c), or

- (d) The **Narcotico-irritant**, such as aconite, poisonous fungi, hemlock, and strychnine. A combination of narcotic and irritant poisons.

SIGNS OF POISONING.

The signs of poisoning are :—

- (a) The sudden appearance of the general symptoms of poisoning, *i.e.*, vomiting, purging, cramp, pain in the stomach or bowels, delirium, unconsciousness, in a person otherwise healthy; or, soon after food, drink or medicine has been taken.
- (b) Several persons may be attacked with similar symptoms after partaking of the same food.
- (c) The patient or the surroundings will give you signs. Look for stains on the clothes, bottle or glass with suspicious-looking contents, lips stained or breath smelling of the poison.
- (d) The patient may have threatened to commit suicide or shown signs of mental depression.

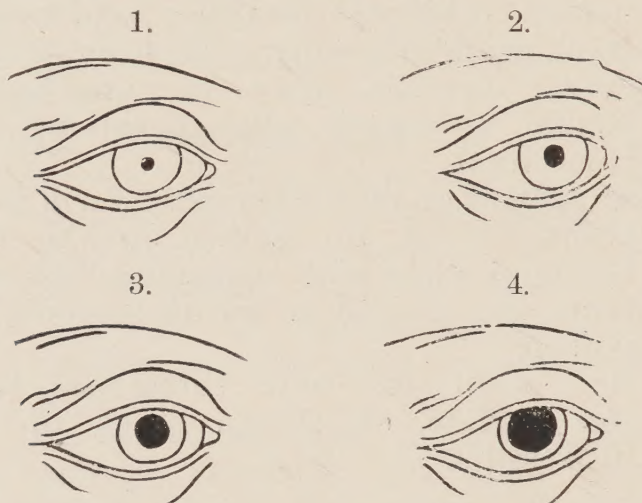
TREATMENT OF POISONING.

1. Send for a doctor at once. State the name of poison, if possible, so that he may come prepared.
2. Except when the lips and mouth are stained or burned by an acid or alkali, give an emetic.
3. When the patient has got rid of as much of the unabsorbed poison from his stomach as he can, give a

demulcent, such as raw eggs, flour and water, milk, tea, animal or vegetable oil (except in phosphorus poisoning).

4. Give stimulants and nourishment and apply warmth if there are signs of collapse.

If you are aware of the nature of the poison apply the special treatment for same.



The small diagrams show how eyes are contracted in 1, opium poisoning, and dilated in 4, belladonna poisoning. The normal pupil is shown in number 2, and dilated pupil of apoplexy in 3.

Emetics.

Emetics are given to get rid of the unabsorbed poison from the system by making the person bring it up.

To begin with the simplest ones, there are :—

- (a) Mustard: a teaspoonful in a tumbler of warm water.
- (b) Salt: a tablespoonful in a tumbler of warm water.
- (c) Tepid water: large draughts of soapy or greasy water, followed by irritation of the back of the throat by means of the finger or a feather.
- (d) Sulphate of zinc: 20 to 30 grains in half a tumbler of warm water. Prompt and safe.
- (e) Ipecacuanha powder: 15 to 30 grains in warm water. Produces very little depression, and does not irritate the stomach.
- (f) Ipecacuanha wine: one to two tablespoonfuls in water. Is not very prompt in its action.

Any of the above emetics may be repeated once ~~or~~ twice, if necessary; the action of an emetic is facilitated by giving plenty of tepid water.

Poison Antidotes.

For

Carbolic Acid (or Phenol).

Nitrate of Silver.

Sugar of Lead.

Vermilion.

Sulphate of Zinc.

Red Precipitate.

Give

Flour and water.

Common salt in water.

} Milk or white of egg in
} large quantities.

*For**Give*

Caustic Potash.
Volatile Alkali.
Caustic Soda.

{ Vinegar or lime juice in
water. Drink a good
quantity.

Blue Vitriol.
Saltpetre.
Corrosive Sublimate.
Lead Water.

{ Milk or white of egg in
large quantities.

Chloral Hydrate.
Chloroform (inhaled).

{ Pour cold water over the
head and face.
Artificial respiration.

Copperas.
Carbonate of Soda.
Cobalt.

{ Emetic: soap or muc-
ilaginous drinks.

Nitric Acid (Aqua
Fortis).
Sulphuric Acid (Oil of
Vitriol).
Muriatic Acid.
Oxalic Acid.
Bicarbonate of Potas-
sium.

{ Soap or Magnesia dis-
solved in water every
two or three minutes.

Laudanum.
Opium.
Morphine,

{ Strong coffee, then pro-
duce vomiting by means
of ground mustard in
warm water. Keep pa-
tient in motion.

For

Arsenic.
 White Precipitate.
 Fowler's Solution.

Tincture Nux Vomica.
 Strychnine.

Tartar Emetic.
 Antimonial Wine.

Give

{ Emetic of tablespoon-
 ful of mustard and
 salt; follow with butter,
 sweet oil, or milk.

{ Mustard emetic, aided by
 warm water.

{ Emetics: large draughts
 of strong tea or coffee;
 stimulants if collapse;
 warmth.

A REMINDER.

Send for the doctor, name the drug suspected,
Keep any cup where poison is suspected.

In every case, whate'er the poison be,
You may give water, milk and eggs and tea.

Oils may be used, but two exceptions lie
In phosphorus poisoning and in Spanish fly.

In every case where staining is not found,
To give emetics is both safe and sound.

So mix at once—be quick, but don't be flustered—
Two tablespoons of salt or one of mustard.

If stains are present, then proceed with care,
And of emetics most of all beware.

The poison known to make the patient placid,
For alkali corrosives give an acid.

An acid swallowed, then reverse the matter,
And give an alkali to kill the latter.

The acid antidotes in household use
Are table vinegar and lemon juice.

What alkalies to use needs no revealing—

Take whitewash, chalk, or plaster from the ceiling.

Carbolic acid poisoning : to make the patient easier

Give tablespoonfuls two of sulphate of magnesia.

In opium poisoning he snores like some old Druid ;

Give him a teaspoonful of Condyl's Fluid.*

In strychnine, opium, when there's long stagnation

Resort to artificial respiration.

The above is taken from the "Red Cross News,"
and summarizes in poetic fashion the treatment to
be adopted in cases of poisoning.

* In half a tumbler of water.

Poisonous Plants.

It is necessary for Scouts, who are always in the open, that they should have a knowledge of plants which are poisonous and which are not.

There is the **Privet**, which is grown as hedges. It is very poisonous and has had fatal results.

Monkshood, also known as Friar's Cowl, Helmet Flower, and Wolf's Bane. It is purple in colour, with dark green leaves, and grows to about three feet in height. Every part of it is poisonous.

The leaves of the **Foxglove** are poisonous. It grows in moist places. Tall, tapering stalk, with bell-shaped flowers.

Fool's Parsley is not unlike ordinary parsley except in colour which is *dark* green, it is a deadly poison. Easily identified by the three small green leaflets which hang under each cluster of white flowers. It grows in hedges.

The **Hemlock**, Water Dropwort, or Dead Tongue, flowers in July. Stalk tinged with red, flowers yellowish white. Grows from two to four or five feet in height.

The **Waterwort, Yew and Berries, Marsh Marigold** are poisonous.

The **Deadly Nightshade** is also known as *Belladonna*. Every part of it is poisonous ; it is even

dangerous to carry in the hand. The stalk is green and often tinged with red ; the berries are green at first, but gradually become a glossy purplish black. They are sweet and about the size of a wild cherry.

The **Bittersweet**, with berries like the Deadly Nightshade, is also poisonous.

Water Hemlock, or Cowbane, is a fatal poison. The flower grows like Hemlock, in a cluster. It has a disagreeable smell. White flowers, June to August. Stalk is hollow, furrowed smooth and red-tinged. Found in the Fen districts. Poisonous to animals, especially to cows, as its name suggests.



WATER HEMLOCK (COWBANE).

Cicuta virosa.



DEADLY NIGHTSHADE.

Atropa Belladonna



FOOL'S PARSLEY.

Aethusa Cynapium.



MONKSHOOD.
Aconitum Napellus.



FOXGLOVE.
Digitalis purpurea



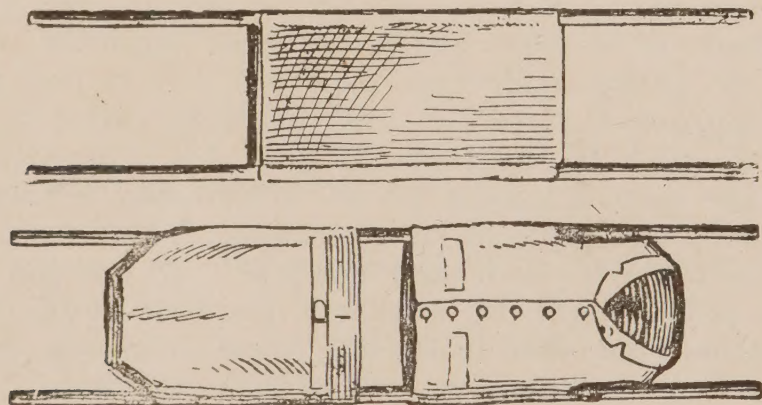
BITTERSWEET.
Solanum Dulcamara.

CHAPTER XIV

STRETCHERS AND HOW TO IMPROVISE THEM

IN order to transport an injured person from one place to another, a stretcher is necessary, but one is seldom handy when wanted.

You carry poles with you, and with a little ingenuity a good stretcher can be made. Look about for something suitable.



If the patient is able to sit up, take a sack, make holes in the bottom corners of it, and pass the poles through. He sits with his back resting against the first bearer.

The coat (or vest) stretcher is easy to improvise. Take two coats and turn the sleeves inside out. Place the coats on the ground with their lower edges touching each other. The poles are passed through the sleeves on each side, and the coats are buttoned up with the buttoned side down. A piece of carpet, wire netting, or a blanket, can be used in the same way as the coats, by rolling in a portion at each side.

Other handy stretchers can be made with your scarves or belts by passing two poles through the loops made by buckling the belts or knotting the scarves.

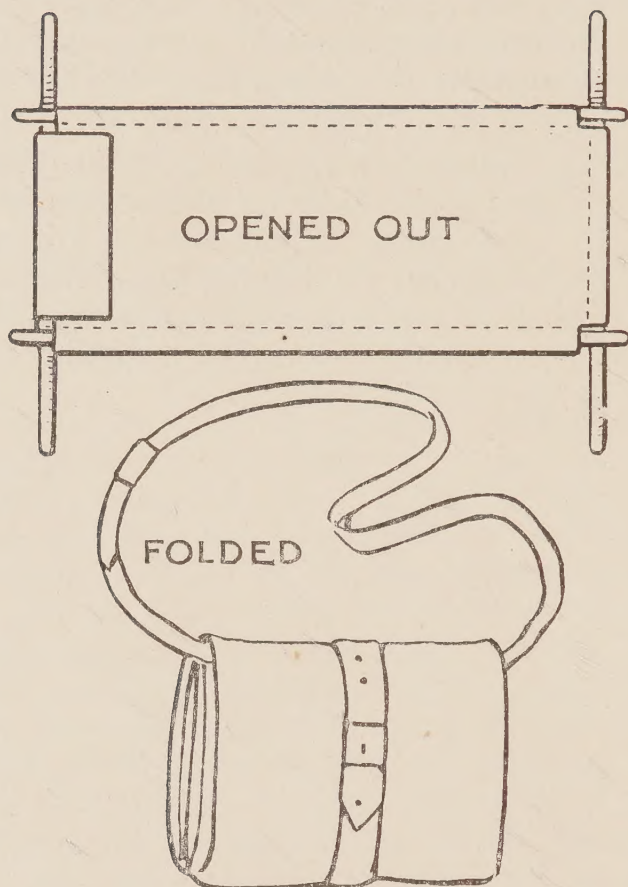
There is a very handy form of stretcher which can be easily made (see page 78). It is not really an improvised stretcher, nor can it be called a regulation one. It has been designed by a Scoutmaster for the special benefit of all Ambulance Scouts. It is made of a piece of strong canvas, 6 feet by 3 feet, on each side of which there is a pole. At one end there is a pillow made by sewing a piece of cloth to the stretcher, one side being left open to enable you to pack it with straw, hay, or any soft material.

If made of light tan canvas, the stretcher will look well. When not in use fold in three, then fold in the ends until they meet, then fold once again. The size is now that of a haversack or school bag. Fasten with a short buckle strap, the strap to go across

the shoulder, and can be laid on before you make the final fold.

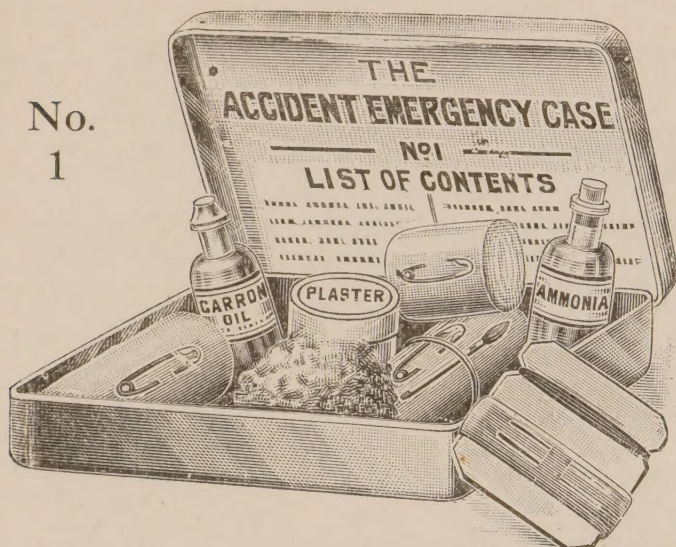
To prevent the straps from becoming lost, sew them to the stretcher in such a way that they will appear on the under side when the stretcher is opened out.

To give the full length required, 6 foot 6 inch poles should be used for the sides of the stretchers. They rest on the end poles. Four Scouts are necessary to carry the stretcher, it having been found by experience that two cannot carry an improvised stretcher with comfort to themselves or the patient.



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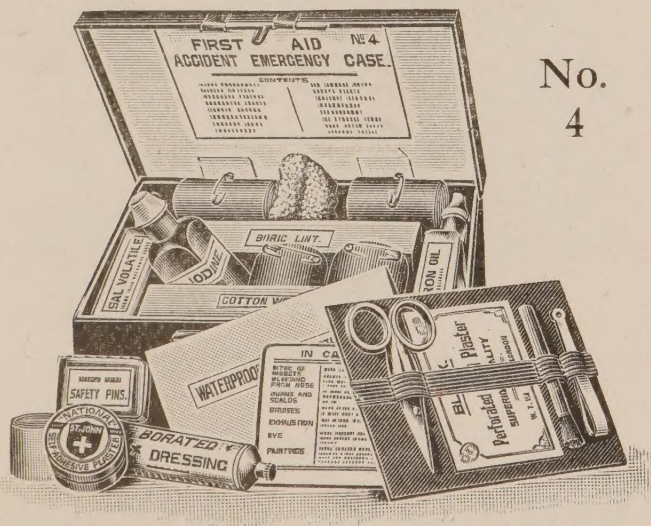
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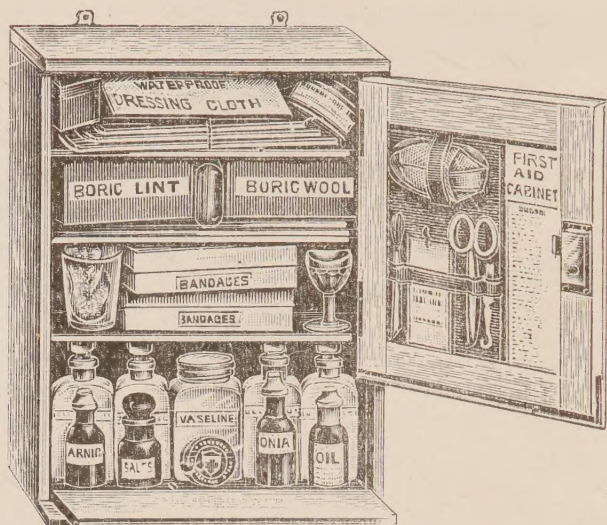
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